What is claimed is:

1. A wavelength allocation method of signal light for use when allocating signal lights of two or more waves on wavelength grids where previously determined wavelength spacing is made a base unit, in wavelength division multiplexing optical transmission in which wavelength division multiplexed signal light obtained by multiplexing a plurality of signal lights of different wavelengths is transmitted over an optical transmission path, said method comprising:

setting the consecutive allocation wavelength number of signal lights to be allocated consecutively on said wavelength grids, to different values according to wavelength bands, based on wavelength dependence of a generation amount of four-wave mixed light on said optical transmission path; and

consecutively allocating the signal lights on said wavelength grids in accordance with the set consecutive allocation wavelength number, but not allocating the signal light on at least one wavelength grid adjacent to the wavelength grids on which a group of signal lights is consecutively allocated.

2. A wavelength allocation method of signal light according to claim 1,

wherein said consecutive allocation wavelength number is set to different values corresponding to the wavelength bands so that a four-wave mixing crosstalk amount calculated for each wavelength corresponding to said wavelength grids is equal to or less than a previously set tolerance value.

3. A wavelength allocation method of signal light according to claim 2, further comprising:

setting a tolerance value α for the amount of four-wave mixing crosstalk;

calculating power in the optical transmission path for signal light of each wavelength corresponding to said wavelength grid;

obtaining a four-wave mixing crosstalk amount β_i (i – wavelength number) corresponding to each wavelength for when the signal lights are allocated on all wavelengths corresponding to said wavelength grids, based on results of calculating the power in said optical transmission path, and also obtaining a four-wave mixing crosstalk amount Υ_{n_1} corresponding to each wavelength for when the signal lights of n waves (where n is an integer of 2 or more) are allocated consecutively on said wavelength grid;

calculating a difference C_n between said four-wave mixing crosstalk amounts β_i and Υ_{n-1} corresponding to the consecutive allocation wavelength number n;

obtaining the consecutive allocation wavelength number n(i) which satisfies a relationship $C_{n+1} < \beta_i - \alpha < C_n$ for the wavelengths where said four-wave mixing crosstalk amount β_i exceeds said tolerance value α; and

determining whether or not to allocate the signal light on each wavelength corresponding to said wavelength grid, in accordance with said consecutive allocation wavelength number n(i).

4. A wavelength allocation method of signal light according to claim 3,

wherein the power in said optical transmission path for said signal light of each wavelength is calculated based on input optical power to said optical transmission path and stimulated Raman scattering occurring in said optical transmission path.

5. A wavelength allocation method of signal light according to claim 1,

wherein when a plurality of upper level wavelength groups for collectively processing the signal lights of a plurality of wavelengths in an optical node on said optical transmission path, is provided for said wavelength grids,

for each signal band on which the signal lights are allocated in each of said upper level wavelength groups, the signal lights are allocated consecutively on the wavelength grids within said signal bands, in accordance with the consecutive allocation wavelength number determined based on the wavelength dependence of said generation amount of four-wave mixed light, but the signal light is not allocated on at least one wavelength grid adjacent to the wavelength grids on which said group of signal lights are allocated consecutively.

6. A wavelength allocation method of signal light according to claim 5,

wherein said optical node is at least one of an optical add/drop multiplexing node and an optical compensation node.

7. A wavelength allocation method of signal light according to claim 1,

wherein said wavelength grid is equally spaced.

8. A wavelength allocation method of signal light according to claim 7,

wherein said equal spacing is 25GHz.

9. An optical transmission apparatus for transmitting wavelength division multiplexed signal light obtained by multiplexing a plurality of signal lights of different wavelengths over an optical transmission path, comprising:

a device which consecutively allocates signal lights on wavelength grids where previously determined wavelength spacing is made a base unit, in accordance with the consecutive allocation wavelength number set to different values according to wavelength bands, but not allocates the signal light on at least one wavelength grid adjacent to the wavelength grids on which a group of signal lights is consecutively allocated, and performing at least one of transmission and reception of wavelength division multiplexed signal light applied with the wavelength allocation of signal lights.

10. A wavelength division multiplexing optical transmission system comprising;

an optical transmission apparatus of claim 9,

wherein wavelength division multiplexed signal light is transmitted via an optical transmission path.